

Transport guru cuts teeth in commercial sector

Work at Chinese AI firm has its rewards but NUS don will still stay on in academic field

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Those who can't, teach may be an unfair adage, but it certainly does not apply to National University of Singapore (NUS) transport re-

searcher Lee Der-Hong.

Professor Lee, 52, has completed a year as head of research and development (R&D) at Chinese tech firm PCITech, which recently launched cutting-edge projects such as facial recognition transit fare collection and a security-thermal scanning system with track and trace capabil-



NUS transport researcher Lee Der-Hong says he hopes to straddle both the commercial and academic fields.

ities – something which came into good use as China battled the coronavirus pandemic.

“This is my first job in the ‘real world’ since I got my PhD in 1996,”

he says with a laugh.

The Taiwanese – now a Singapore citizen – obtained his doctorate from the University of Illinois in Chicago, focusing on intelligent transport systems. “I was too tall for national service in Taiwan,” says Prof Lee, a towering 1.98m. “So I saved two years.”

He joined NUS in 1999, and is now a tenured professor in the Department of Civil and Environmental Engineering.

Prof Lee is familiar to those in transport circles, having been widely quoted by local and regional media. Always ready with a comment, the chartered engineer has more than once raised the ire of transport practitioners when critical of their systems. “What does he know?” they would chime.

Well, enough for PCITech, a firm specialising in artificial intelligence applications, to appoint him dean of its Intelligent Technology Research Institute and its senior vice-president in charge of R&D.

The company first approached him in late 2017. After about a year of what Prof Lee describes as “mutual observation”, the company asked him to join them. “They were

flexible. They didn’t ask me to resign from NUS,” he recalls. “And NUS was also agreeable.”

So, on Feb 1 last year he joined PCITech after being granted a year’s unpaid leave by the university. After the year was up, he obtained a six-month extension to his furlough.

At PCITech, Prof Lee has been working on upgrading an Infrastructure Data Platform Service System, essentially a powerful “traffic brain”.

Prof Lee says the system is capable of “perception, cognition and decision-making”.

“The traffic brain can reconstruct vehicle trajectories and replay them in simulations, analyse vehicle paths, evaluate road conditions, optimise traffic signal operations, and monitor carpark usages,” he adds.

Unlike older intelligent transport systems, this system is able to optimise traffic flow in a city’s entire network throughout the day, instead of isolated areas during certain times.

Another area in which he contributed was adapting PCITech’s thermal scanning, facial recognition and movement tracking systems in the fight against the Covid-19 pandemic.

He helped integrate these systems so that anyone who has been

in close contact with a person with fever can be tracked.

Even people who have been near an asymptomatic carrier – who eventually tests positive – can be identified and contacted quickly.

Much of the capability hinged on the massive amount of data PCITech has been collecting since its facial recognition fare collection system was put into use last September.

PCITech’s thermal scanning systems were in use in 28 Chinese cities across 17 provinces as at the end of March, including Guangdong, Yunnan, Shandong and Hunan.

The work, he says, has been hectic: “The pace in the commercial world is very fast. You must have a cool mind to see through the day-to-day challenges ahead of you.”

The reward, he says, is “the moment when you see your research outcome become something tangible and useful to people – and not merely as research papers”.

Asked if he would move over to the commercial world permanently, Prof Lee says: “I am greedy. I hope to have my feet both in the commercial and academic fields.”

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